8.4b Improper Integrals

Comparison Test

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$$\int_1^{\infty} e^{-x^2}\,dx$$

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Does the integral converge or diverge?

$$\int_1^{\infty} \frac{dx}{x^5+1}$$

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Find the volume of the solid obtained by revolving the curve about the x-axis $y = xe^{-x}, 0 \le x < \infty$

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Gabriel's Horn

Consider the region R in the first quadrant bounded above by y=1/x and on the left by x=1. The region is revolved around the x-axis.

a) Show that R has infinite area.

b) Find the volume of the solid.

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